

**SEARCH REQUEST FORM**

Scientific and Technical Information Center

Requester's Full Name: JAMES LIN Examiner #: 82271 Date: 2-28-06  
 Art Unit: 1762 Phone Number 36 Serial Number: 10/630,165  
 Mail Box and Bldg/Room Location: 8D49 Results Format Preferred (circle): PAPER DISK E-MAIL

**If more than one search is submitted, please prioritize searches in order of need.**

\*\*\*\*\*

Please provide a detailed statement of the search topic, and describe as specifically as possible the subject matter to be searched. Include the elected species or structures, keywords, synonyms, acronyms, and registry numbers, and combine with the concept or utility of the invention. Define any terms that may have a special meaning. Give examples or relevant citations, authors, etc, if known. Please attach a copy of the cover sheet, pertinent claims, and abstract.

Title of Invention: \_\_\_\_\_

Inventors (please provide full names): \_\_\_\_\_

Earliest Priority Filing Date: \_\_\_\_\_

*\*For Sequence Searches Only\* Please include all pertinent information (parent, child, divisional, or issued patent numbers) along with the appropriate serial number.*

PLEASE SEE ATTACHED CLAIMS.

\*\*\*\*\*  
**STAFF USE ONLY**

	Type of Search	Vendors and cost where applicable
Searcher: <u>EL</u>	NA Sequence (#) _____	STN <u>\$ 291.38</u>
Searcher Phone #: _____	AA Sequence (#) _____	Dialog _____
Searcher Location: _____	Structure (#) <u>✓ (2)</u>	Questel/Orbit _____
Date Searcher Picked Up: _____	Bibliographic <u>✓ (and)</u>	Dr. Link _____
Date Completed: <u>3-3-06</u>	Litigation <u>✓</u>	Lexis/Nexis _____
Searcher Prep & Review Time: <u>10</u>	Fulltext _____	Sequence Systems _____
Clerical Prep Time: _____	Patent Family _____	WWW/Internet _____
Online Time: <u>80</u>	Other _____	Other (specify) _____

WE CLAIM:

1. A method for vapor-depositing a layer of a needle-shaped x-ray luminophore with at least one alkali metal on a carrier, said method comprising providing a carrier, simultaneously vaporizing a mixture of at least one europium(III) oxyhalogenide with at least one alkali halogenide and vapor-depositing the vapor on the carrier.

2. A method according to claim 1, wherein the step of simultaneously vaporizing utilizes a molybdenum vaporizer.

3. A method according to claim 1, wherein the simultaneously co-vaporization of the alkali halogenide with the europium(III) oxyhalogenide, the ratio of the Eu concentration of the alkali halogenide layer in the proximity of the substrate to the Eu concentration of the alkali halogenide layer in the proximity of the surface can be reproduced between a factor of 0.4 and 1.2.

4. A method according to claim 3, wherein the concentration is reproduced between a factor of 0.6 and 0.8.

5. A method according to claim 1, wherein the at least one europium(III) oxyhalogenide has a formula of  $\text{Eu}_3\text{O}_4\text{Hal}$ , wherein Hal is at least one halogenide from a group consisting of F, Cl, Br and I.

6. A method according to claim 5, wherein the alkali halogenide comprises at least one metal selected from a group consisting of Na, K, Rb and Cs and at least one halogenide from the group F, Cl, Br and I.

7. A method according to claim 1, wherein the x-ray luminophore occurs according to the following formula:



wherein A is an alkali metal from a group consisting of Na, K, Rb and Cs; B and C are at least one halogenide from a group consisting of F, Cl, Br and I; wherein C can equal 0 and D

and E are at least one halogenide from a group consisting of F, Cl, Br and I, wherein A, D and/or E can be equal.

8. A method according to claim 7, wherein the depositing of the layer on the carrier forms a storage luminophore plate.

#### ABSTRACT OF THE DISCLOSURE

A method forms a vapor-deposit layer of needle-shaped x-ray luminophore containing at least one alkali metal doped with europium on a carrier. The method includes placing a mixture of  $\text{Eu}_3\text{O}_4\text{Hal}$  and at least one alkali halogenide in a molybdenum vaporizer, heating the mixture to simultaneously vaporize the mixture and to deposit it on a carrier, wherein Hal is at least one halogenide from a group consisting of F, Cl, Br and I. The ratio of the Eu concentration of the alkali halogenide layer in the proximity of the substrate to the Eu concentration of the alkali halogenide layer in the proximity of the surface can preferably be reproduced with a factor of 0.4 to 1.2, and preferably between 0.6 and 0.8.

Banks, Kendra

180887

**From:** JAMES LIN [james.lin@uspto.gov]  
**Sent:** Tuesday, February 28, 2006 2:05 PM  
**To:** STIC-EIC1700  
**Subject:** Database Search Request, Serial Number: 10630165

**Requester:**  
JAMES LIN (P/1762)  
**Art Unit:**  
GROUP ART UNIT 1762  
**Employee Number:**  
82271  
**Office Location:**

**Phone Number:**

**Mailbox Number:**

**Case serial number:**  
10630165  
**Class / Subclass(es):**  
427,255.39,64  
**Earliest Priority Filing Date:**  
7/30/03

**Format preferred for results:**  
E-mail

**Search Topic Information:**

Europium(III) oxyhalogenide preferably with alkali halogenide  
Eu.sub.3O.sub.4Hal, where Hal can be F, Cl, Br, and I  
The alkali halogenide at least one metal from the group Na, K, Rb, and Cs; and at least one halogenide from the group F, Cl, Br, and I.  
**Special Instructions and Other Comments:**

SCIENTIFIC REFERENCE BR  
Sci & Tech Inf - Cnt

FEB 28 REC'D

Pat. & T.M. Office

=> file reg

FILE 'REGISTRY' ENTERED ON 03 MAR 2006

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=> display history full l1-

FILE 'HCAPLUS' ENTERED ON 03 MAR 2006

L1 11664 SEA FUCHS ?/AU  
L2 692 SEA HELL ?/AU  
L3 1361 SEA ROHRER ?/AU OR ROEHRER ?/AU  
L4 3 SEA L1 AND L2 AND L3  
SEL L4 1-3 RN

FILE 'REGISTRY' ENTERED ON 03 MAR 2006

L5 50 SEA (7440-53-1/BI OR 7787-69-1/BI OR 12514-47-5/BI OR  
L6 4990 SEA (EU(L)O(L)X)/ELS  
L7 24 SEA L6 (L) 3/ELC.SUB

FILE 'LREGISTRY' ENTERED ON 03 MAR 2006

L8 0 SEA (A1(L)A7)/ELS NOT ((A2 OR T1 OR T2 OR T3 OR LNTH OR  
ACTN OR SHEL OR B2 OR A3 OR A4 OR A5 OR A6 OR A8)/PG OR  
(H OR C)/ELS)  
L9 33 SEA (A1(L)A7)/PG NOT ((A2 OR T1 OR T2 OR T3 OR LNTH OR  
ACTN OR SHEL OR B2 OR A3 OR A4 OR A5 OR A6 OR A8)/PG OR  
(H OR C)/ELS)

FILE 'REGISTRY' ENTERED ON 03 MAR 2006

L10 2221 SEA (A1(L)A7)/PG NOT ((A2 OR T1 OR T2 OR T3 OR LNTH OR  
ACTN OR SHEL OR B2 OR A3 OR A4 OR A5 OR A6 OR A8)/PG OR  
(H OR C)/ELS)

FILE 'HCA' ENTERED ON 03 MAR 2006

L11 139 SEA L7  
L12 265313 SEA L10  
L13 14 SEA L11 AND L12  
L14 175 SEA (EUROPIUM# OR EU) (A) (OXYHALOGENIDE# OR OXYHALIDE# OR  
OXYFLUORIDE# OR OXYCHLORIDE# OR OXYBROMIDE# OR OXYIODIDE#  
) OR (EUROPIUM# OR EU) (W) (OXIDE#(A) (HALIDE# OR HALOGENIDE  
# OR FLUORIDE# OR CHLORIDE# OR BROMIDE# OR IODIDE#)) OR  
EUOF OR EUOCL OR EUOBR OR EUOI OR EUFO OR EUCLO OR EUBRO  
OR EUIO  
L15 273968 SEA (ALK# OR ALKALI# OR LITHIUM# OR LI OR SODIUM# OR NA  
OR POTASSIUM# OR K OR RUBIDIUM# OR RB OR CESIUM# OR  
CS) (W) (HALIDE# OR FLUORIDE# OR CHLORIDE# OR BROMIDE# OR  
IODIDE#)

L16 603048 SEA LIF OR LICL OR LIBR OR LII OR NAF OR NACL OR NABR OR  
NAI OR KF OR KCL OR KBR OR KI OR RBF OR RBCL OR RBBR OR  
RBI OR CSF OR CSCL OR CSBR OR CSI  
L17 21 SEA (L14 OR L11) AND (L15 OR L16 OR L12)  
L18 21 SEA L13 OR L17

=> file hca

FILE 'HCA' ENTERED ON 03 MAR 2006.

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=> d l18 1-21 cbib abs hitstr hitind

L18 - ANSWER 1 OF 21 HCA COPYRIGHT 2006 ACS on STN

143:468293 Specific features of photoluminescence centers in  
**CsBr:Eu2+** crystals grown from melt. Zorenko, Yu. V.;  
Turchak, R. M.; Konstankevich, I. V. (Optoelectronic Materials  
Laboratory, I. Franko Lviv National University, Lvov, 79017,  
Ukraine). Functional Materials, 11(4), 707-709 (English) 2004.  
CODEN: FMUAB4. ISSN: 1027-5495. Publisher: National Academy of  
Sciences of Ukraine, Institute for Single Crystals.

AB Specific formation features of isolated dipole centers (IDC)  
**Eu2+-VCs** (impurity-cationic vacancy) and aggregate centers (a.c.) of  
photoluminescence (PL) in **CsBr:Eu2+** crystals were studied.  
These centers provide the PL with maxima in 435-450 nm and 490-520  
nm regions. The centers causing the PL peaked at 490-520 nm are  
formed within a narrow **Eu2+** concn. range (0.01 to 0.1 mol.%) and at  
temps. up to 180-200.degree.. Probably in the **CsBr:Eu2+**  
crystals, besides of the IDC responsible for the PL peaked at 440  
nm, several a.c. types can be obsd., in particular, **CsEuBr3** and  
**Cs4EuBr6** nanocrystals as well as **EuBr2** ppts.

IT 7787-69-1, Cesium bromide

(doped with europium; specific features of photoluminescence  
centers in **CsBr:Eu2+** crystals grown from melt)

RN 7787-69-1 HCA

CN Cesium bromide (**CsBr**) (9CI) (CA INDEX NAME)

Br—Cs

IT 13843-47-5, Europium bromide  
oxide (**EuBrO**)

(specific features of photoluminescence centers in **CsBr**  
:**Eu2+** crystals grown from melt)

RN 13843-47-5 HCA

CN Europium bromide oxide (EuBrO) (9CI) (CA INDEX NAME)

Br—Eu=O

- CC 73-5 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)
- ST luminescence photoluminescence europium doped **cesium bromide** crystal
- IT Annealing  
(effect of; specific features of photoluminescence centers in **CsBr:Eu2+** crystals grown from melt)
- IT Luminescence  
(specific features of photoluminescence centers in **CsBr:Eu2+** crystals grown from melt)
- IT 7440-53-1, Europium, properties 16910-54-6, Europium Eu2+, properties  
(**cesium bromide** doped with; specific features of photoluminescence centers in **CsBr:Eu2+** crystals grown from melt)
- IT 7787-69-1, **Cesium bromide**  
(doped with europium; specific features of photoluminescence centers in **CsBr:Eu2+** crystals grown from melt)
- IT 13780-48-8, Europium bromide (EuBr2) 664355-67-3, Cesium europium bromide (CsEuBr3) 664355-83-3, Cesium europium bromide (Cs4EuBr6)  
(specific features of photoluminescence centers in **CsBr:Eu2+** crystals grown from melt)
- IT 13843-47-5, **Europium bromide oxide (EuBrO)**  
(specific features of photoluminescence centers in **CsBr:Eu2+** crystals grown from melt)

L18. ANSWER 2 OF 21 HCA COPYRIGHT 2006 ACS on STN

142:337906 Scratch-resistant, moisture-protecting parylene coatings.

Van Den Bergh, Rudy; Cabes, Thomas (Belg.). U.S. Pat. Appl. Publ.

US 2005067584 A1 20050331, 11 pp. (English). CODEN: USXXCO.

APPLICATION: US 2004-939697 20040913. PRIORITY: EP 2003-103618

20030930; US 2003-2003/PV510908 20031014.

AB A coating, useful for phosphor sheets or panels, comprises at least two layers: a layer A, being a layer of parylene and a layer B, wherein layer B, optionally present at both sides of layer A, is characterized in that it based on an polymer coating contg. at least one phosphoric acid ester compd. to improve the adhesion between the parylene layer and the polymer coating. A typical coating compn. was prepd. by dissolving 5 g Bu methacrylate-Me methacrylate copolymer in 25 g 1,6-hexanediol diacrylate, adding 25 g Laromer TMPTA and 45 g Ebecryl 1290 (hexafunctional urethane acrylate),



homogenizing, adding 3% Modaflow, dissolving 4 g each Darocur 1173 and benzophenone, and mixing 5 g Rhodafac 710 (dioctylphenyl polyethylene glycol phosphate) with 20 g resulting soln.

IT 7787-69-1, Cesium bromide

13843-47-5, Europium oxybromide

(phosphor component; scratch- and moisture-resistant parylene multilayer coatings contg. phosphate esters in nonparylene polymer layers for improved interlayer adhesion for phosphor panels)

RN 7787-69-1 HCA

CN Cesium bromide (CsBr) (9CI) (CA INDEX NAME)

Br—Cs

RN 13843-47-5 HCA

CN Europium bromide oxide (EuBrO) (9CI) (CA INDEX NAME)

Br—Eu=O

IC ICM G21K004-00

ICS B32B015-04; B32B007-12

INCL 250484400; 428343000; 428351000

CC 42-10 (Coatings, Inks, and Related Products)

Section cross-reference(s): 73

IT 7787-69-1, Cesium bromide

13843-47-5, Europium oxybromide

(phosphor component; scratch- and moisture-resistant parylene multilayer coatings contg. phosphate esters in nonparylene polymer layers for improved interlayer adhesion for phosphor panels)

L18 ANSWER 3 OF 21 HCA COPYRIGHT 2006 ACS on STN

142:305705 Specific Features of Absorption and Luminescence in

CsBr:EuOBr Crystals. Zorenko, Yu. V.; Turchak, R.

M.; Konstankevich, I. V. (Franko National University, Lvov, 79044, Ukraine). Physics of the Solid State (Translation of Fizika Tverdogo Tela (Sankt-Peterburg)), 46(7), 1225-1230 (English) 2004.

CODEN: PSOSD. ISSN: 1063-7834. Publisher: MAIK

Nauka/Interperiodica Publishing.

AB The specific features of the absorption, photoluminescence, x-ray luminescence, thermally stimulated luminescence, and photostimulated luminescence spectra of CsBr : Eu<sup>2+</sup> single crystals grown using the Bridgman method were studied in the temp. range 80-500 K at the highest possible dopant content (0.1-0.4 mol % EuOBr in the batch) required for prepg. perfect crystals. An increase in the dopant content leads to a broadening of the absorption and

photoluminescence excitation bands with maxima at wavelengths of 250 and 350 nm due to the interconfigurational transitions  $4f7(8S7/2) \rightarrow 4f65d(eg, t2g)$  in  $\text{Eu}^{2+}$  ions. The photoluminescence and photostimulated luminescence spectra of **CsBr:**

**EuOBr** single crystals (0.1-0.4 mol % **EuOBr**)

contain a band at a wavelength of  $\lambda_{\text{max}} = 450$  nm and bands at wavelengths of  $\lambda_{\text{max}} = 508-523$  and 436 nm. The last two bands are assigned to  $\text{Eu}^{2+}$ -VCs isolated dipole centers and  $\text{Eu}^{2+}$ -contg. aggregate centers, resp. The intensity of the luminescence assocd. with the aggregate centers ( $\lambda_{\text{max}} = 508-523$  nm) is max. at an **EuOBr** content of less than or equal to 0.1 mol % and decreases with an increase in the dopant content. The possibility of forming  $\text{CsEuBr}_3$ -type nanocrystals that are responsible for the green luminescence obsd. at a wavelength  $\lambda_{\text{max}} = 508-523$  nm in **CsBr : Eu** crystals is discussed. The intensity of photostimulated luminescence in the **CsBr:EuOBr** crystals irradiated with x-ray photons increases as the dopant content increases. **CsBr:EuOBr** crystals at a dopant content in the range 0.3-0.4 mol % can be used as x-ray storage phosphors for visualizing x-ray images with high spatial resolu.

IT 13843-47-5, Europium bromide  
oxide (**EuBrO**)

(specific features of absorption and luminescence in **CsBr**  
:**EuOBr** crystals)

RN 13843-47-5 HCA

CN Europium bromide oxide (**EuBrO**) (9CI) (CA INDEX NAME)

Br—Eu=O

IT 7787-69-1, Cesium bromide (**CsBr**  
)

(specific features of absorption and luminescence in **CsBr**  
:**EuOBr** crystals)

RN 7787-69-1 HCA

CN Cesium bromide (**CsBr**) (9CI) (CA INDEX NAME)

Br—Cs

CC 73-5 (Optical, Electron, and Mass Spectroscopy and Other Related  
Properties)

ST absorption luminescence cesium bromide europium  
oxide crystal

IT Photoexcitation

(by nitrogen laser; specific features of absorption and  
luminescence in **CsBr:EuOBr** crystals)

IT Electronic transition  
(interconfigurational; specific features of absorption and luminescence in CsBr:EuOBr crystals)

IT Luminescence  
Optical absorption  
Phosphors  
Thermoluminescence  
X-ray

(specific features of absorption and luminescence in CsBr:EuOBr crystals)

IT 13843-47-5, Europium bromide oxide (EuBrO) 16910-54-6, Europium(2+), properties

(specific features of absorption and luminescence in CsBr:EuOBr crystals)

IT 7787-69-1, Cesium bromide (CsBr)

(specific features of absorption and luminescence in CsBr:EuOBr crystals)

L18 ANSWER 4 OF 21 HCA COPYRIGHT 2006 ACS on STN

141:215754 Manufacture of x-ray image conversion phosphor panel with improved sensitivity. Isoda, Tomotake (Fuji Photo Film Co., Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 2004233134 A2 20040819, 12 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 2003-20145 20030129.

AB The invention relates to a vapor deposition method for forming a x-ray image conversion phosphor panel, wherein the additives to the phosphor are prep'd. from EuOX and/or EuXm (X = F, Cl, Br, I; m = 2.0-3.0) under 1.times.10<sup>-8</sup>-1.times.10<sup>-4</sup> Pa oxygen partial pressure condition.

IT 13843-47-5, Europium bromide oxide (EuOBr)

(dopant to phosphor; manuf. of x-ray image conversion phosphor panel with improved sensitivity)

RN 13843-47-5 HCA

CN Europium bromide oxide (EuBrO) (9CI) (CA INDEX NAME)

Br—Eu=O

IT 7787-69-1D, Cesium bromide, Eu-doped

(phosphor; manuf. of x-ray image conversion phosphor panel with improved sensitivity)

RN 7787-69-1 HCA

CN Cesium bromide (CsBr) (9CI) (CA INDEX NAME)

Br—Cs

IC ICM G21K004-00  
ICS C09K011-00; C09K011-08; C09K011-61; C09K011-62; C09K011-64;  
C09K011-85; C23C014-24; G01T001-00

CC 74-13 (Radiation Chemistry, Photochemistry, and Photographic and  
Other Reprographic Processes)  
Section cross-reference(s): 73

IT 13843-47-5, **Europium bromide**  
**oxide (EuOBr)** 122327-95-1, Europium bromide  
(EuBr)  
(dopant to phosphor; manuf. of x-ray image conversion phosphor  
panel with improved sensitivity)

IT 7787-69-1D, **Cesium bromide**, Eu-doped  
(phosphor; manuf. of x-ray image conversion phosphor panel with  
improved sensitivity)

~~148~~ 148 ANSWER 5 OF 21 HCA COPYRIGHT 2006 ACS on STN  
~~149~~ 149:171906 Methods for vapor deposition of needle-shaped x-ray phosphor  
layers on supports. Fuchs, Manfred; Hell, Erich; Roehrer, Peter  
(Siemens AG, Germany). Ger. Offen. DE 10235057 A1 20040212, 6 pp.  
(German). CODEN: GWXXBX. APPLICATION: DE 2002-10235057 20020731.

AB Methods for vapor deposition of needle-shaped alkali metal-contg.  
x-ray phosphor layers on supports (e.g., to produce storage phosphor  
plates) are described which entail simultaneous vaporization of  
.gtoreq.1 europium (II) oxyhalide and .gtoreq.1 alkali metal halide  
followed by deposition on the substrate. The resulting phosphors  
may be described by the general formula AB/C:EuD,E (A = Na, K, Rb  
and/or Cs; B = F, Cl, Br, and/or I; C = F, Cl, Br, I and/or O; and D  
and E = F, Cl, Br, and/or I).

IT 7787-69-1, **Cesium bromide**  
7789-17-5, **Cesium iodide**  
7789-39-1, **Rubidium bromide**  
7791-11-9, **Rubidium chloride**, uses  
(vapor deposition of needle-shaped x-ray phosphor layers on  
supports using coevaporation of **europium**  
**oxyhalides** and alkali metal halides)

RN 7787-69-1 HCA  
CN Cesium bromide (CsBr) (9CI) (CA INDEX NAME)

Br—Cs

RN 7789-17-5 HCA  
CN Cesium iodide (CsI) (7CI, 8CI, 9CI) (CA INDEX NAME)

Cs—I

RN 7789-39-1 HCA  
 CN Rubidium bromide (RbBr) (9CI) (CA INDEX NAME)

Br-Rb

RN 7791-11-9 HCA  
 CN Rubidium chloride (RbCl) (9CI) (CA INDEX NAME)

Cl-Rb

IT 118146-86-4, Cesium bromide iodide  
 (Cs(Br,I)) 135155-33-8, Rubidium bromide  
 chloride (RbBr0-1Cl0-1) 656824-87-2, Cesium  
 rubidium bromide ((Cs,Rb)Br) 656824-88-3  
 , Cesium rubidium bromide iodide ((Cs,Rb)(Br,I))  
 (vapor deposition of needle-shaped x-ray phosphor layers on  
 supports using coevaporation of europium  
 oxyhalides and alkali metal halides)

RN 118146-86-4 HCA  
 CN Cesium bromide iodide (Cs(Br,I)) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
I	0 - 1	14362-44-8
Br	0 - 1	10097-32-2
Cs	1	7440-46-2

RN 135155-33-8 HCA  
 CN Rubidium bromide chloride (Rb(Br,Cl)) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
Cl	0 - 1	22537-15-1
Br	0 - 1	10097-32-2
Rb	1	7440-17-7

RN 656824-87-2 HCA  
 CN Cesium rubidium bromide ((Cs,Rb)Br) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
Br	1	10097-32-2
Cs	0 - 1	7440-46-2

Rb | 0 - 1 | 7440-17-7

RN 656824-88-3 HCA

CN Cesium rubidium bromide iodide ((Cs,Rb)(Br,I)) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
I	0 - 1	14362-44-8
Br	0 - 1	10097-32-2
Cs	0 - 1	7440-46-2
Rb	0 - 1	7440-17-7

IT 12506-22-8, Europium bromide  
oxide (Eu<sub>4</sub>Br<sub>6</sub>O) 12506-73-9, Europium  
chloride oxide (Eu<sub>4</sub>Cl<sub>6</sub>O) 12514-47-5,  
Europium bromide oxide (Eu<sub>3</sub>Br<sub>4</sub>O)  
656824-80-5, Europium fluoride  
oxide (Eu<sub>3</sub>F<sub>4</sub>O) 656824-81-6, Europium  
iodide oxide (Eu<sub>4</sub>I<sub>6</sub>O) 656824-82-7,  
Europium fluoride oxide (Eu<sub>4</sub>F<sub>6</sub>O)  
656824-83-8, Europium chloride  
oxide (Eu<sub>3</sub>Cl<sub>4</sub>O) 656824-84-9, Europium  
iodide oxide (Eu<sub>3</sub>I<sub>4</sub>O)

(vapor deposition of needle-shaped x-ray phosphor layers on  
supports using coevaporation of europium  
oxyhalides and alkali metal halides)

RN 12506-22-8 HCA

CN Europium bromide oxide (Eu<sub>4</sub>Br<sub>6</sub>O) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	1	17778-80-2
Br	6	10097-32-2
Eu	4	7440-53-1

RN 12506-73-9 HCA

CN Europium chloride oxide (Eu<sub>4</sub>Cl<sub>6</sub>O) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
Cl	6	22537-15-1
O	1	17778-80-2
Eu	4	7440-53-1

RN 12514-47-5 HCA

CN Europium bromide oxide (Eu<sub>3</sub>Br<sub>4</sub>O) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
=====	=====	=====
O	1	17778-80-2
Br	4	10097-32-2
Eu	3	7440-53-1

RN 656824-80-5 HCA

CN Europium fluoride oxide (Eu<sub>3</sub>F<sub>4</sub>O) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
=====	=====	=====
O	1	17778-80-2
F	4	14762-94-8
Eu	3	7440-53-1

RN 656824-81-6 HCA

CN Europium iodide oxide (Eu<sub>4</sub>I<sub>6</sub>O) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
=====	=====	=====
O	1	17778-80-2
I	6	14362-44-8
Eu	4	7440-53-1

RN 656824-82-7 HCA

CN Europium fluoride oxide (Eu<sub>4</sub>F<sub>6</sub>O) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
=====	=====	=====
O	1	17778-80-2
F	6	14762-94-8
Eu	4	7440-53-1

RN 656824-83-8 HCA

CN Europium chloride oxide (Eu<sub>3</sub>Cl<sub>4</sub>O) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
=====	=====	=====
Cl	4	22537-15-1
O	1	17778-80-2

Eu | 3 | 7440-53-1

RN 656824-84-9 HCA

CN Europium iodide oxide (Eu<sub>3</sub>I<sub>4</sub>O) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
=====+=====+=====		
O	1	17778-80-2
I	4	14362-44-8
Eu	3	7440-53-1

IC ICM C09K011-61

ICS C09K011-55; H01J009-22; C23C016-448

CC 73-5 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)

Section cross-reference(s): 75

ST europium alkali metal halide x ray phosphor vapor deposition;  
storage phosphor vapor deposition; **europium**  
**oxyhalide** alkali metal halide coevapn phosphor deposition

IT X-ray devices

(luminescent screens; vapor deposition of needle-shaped x-ray phosphor layers on supports using coevaporation of **europium oxyhalides** and alkali metal halides for)

IT Halides

(**oxyhalides, europium**; vapor deposition of needle-shaped x-ray phosphor layers on supports using coevaporation of **europium oxyhalides** and alkali metal halides)

IT Phosphors

(radioluminescent phosphors, for x-rays; vapor deposition of needle-shaped x-ray phosphor layers on supports using coevaporation of **europium oxyhalides** and alkali metal halides)

IT Vapor deposition process

(vapor deposition of needle-shaped x-ray phosphor layers on supports using coevaporation of **europium oxyhalides** and alkali metal halides)

IT Alkali metal halides, uses

(vapor deposition of needle-shaped x-ray phosphor layers on supports using coevaporation of **europium oxyhalides** and alkali metal halides)

IT Luminescent screens

(x-ray; vapor deposition of needle-shaped x-ray phosphor layers on supports using coevaporation of **europium oxyhalides** and alkali metal halides for)

IT 13769-20-5, Europium dichloride 13780-48-8, Europium dibromide



- 656824-85-0, Europium bromide fluoride (Eu(Br,F)) 656824-86-1, Europium fluoride iodide (Eu(F,I))  
(alkali halide phosphors activated with;  
vapor deposition of needle-shaped x-ray phosphor layers on supports using coevaporation of **europium oxyhalides** and alkali metal halides)
- IT 7440-53-1, Europium, uses 16910-54-6, Europium +2, uses  
(alkali halide phosphors activated with;  
vapor deposition of needle-shaped x-ray phosphor layers on supports using coevaporation of **europium oxyhalides** and alkali metal halides)
- IT 7787-69-1, Cesium bromide  
7789-17-5, Cesium iodide  
7789-39-1, Rubidium bromide  
7791-11-9, Rubidium chloride, uses  
(vapor deposition of needle-shaped x-ray phosphor layers on supports using coevaporation of **europium oxyhalides** and alkali metal halides)
- IT 118146-86-4, Cesium bromide iodide  
(Cs(Br,I)) 135155-33-8, Rubidium bromide  
chloride (RbBr0-1Cl0-1) 656824-87-2, Cesium  
rubidium bromide ((Cs,Rb)Br) 656824-88-3  
, Cesium rubidium bromide iodide ((Cs,Rb)(Br,I))  
(vapor deposition of needle-shaped x-ray phosphor layers on supports using coevaporation of **europium oxyhalides** and alkali metal halides)
- IT 12506-22-8, Europium bromide  
oxide (Eu4Br6O) 12506-73-9, Europium  
chloride oxide (Eu4Cl6O) 12514-47-5,  
Europium bromide oxide (Eu3Br4O)  
656824-80-5, Europium fluoride  
oxide (Eu3F4O) 656824-81-6, Europium  
iodide oxide (Eu4I6O) 656824-82-7,  
Europium fluoride oxide (Eu4F6O)  
656824-83-8, Europium chloride  
oxide (Eu3Cl4O) 656824-84-9, Europium  
iodide oxide (Eu3I4O)  
(vapor deposition of needle-shaped x-ray phosphor layers on supports using coevaporation of **europium oxyhalides** and alkali metal halides)
- X L18 ANSWER 6 OF 21 HCA COPYRIGHT 2006 ACS on STN  
140:171905 Methods for vapor deposition of needle-shaped x-ray phosphor  
layers on supports. Fuchs, Manfred; Hell, Erich; Roehrer, Peter  
(Siemens AG, Germany). Ger. Offen. DE 10235051 A1 20040212, 5 pp.  
(German). CODEN: GWXXBX. APPLICATION: DE 2002-10235051 20020731.
- AB Methods for vapor deposition of needle-shaped alkali metal-contg.  
x-ray phosphor layers on supports (e.g., to produce storage phosphor

plates) are described which entail simultaneous vaporization of .gtoreq.1 europium (II) oxyhalide and .gtoreq.1 alkali metal halide followed by deposition on the substrate. Preferably, a molybdenum evaporator is used to evap. the europium (II) oxyhalide(s). The resulting phosphors may be described by the general formula AB/C:EuD,E (A = Na, K, Rb and/or Cs; B = F, Cl, Br, and/or I; C = F, Cl, Br, I and/or O; and D and E = F, Cl, Br, and/or I).

IT 7787-69-1, Cesium bromide  
 7789-39-1, Rubidium bromide  
 7791-11-9, Rubidium chloride, uses  
 656825-01-3, Rubidium chloride iodide  
 (Rb(Cl,I))

(vapor deposition of needle-shaped x-ray phosphor layers on supports using coevaporation of europium oxyhalides and alkali metal halides)

RN 7787-69-1 HCA  
 CN Cesium bromide (CsBr) (9CI) (CA INDEX NAME)

Br—Cs

RN 7789-39-1 HCA  
 CN Rubidium bromide (RbBr) (9CI) (CA INDEX NAME)

Br—Rb

RN 7791-11-9 HCA  
 CN Rubidium chloride (RbCl) (9CI) (CA INDEX NAME)

Cl—Rb

RN 656825-01-3 HCA  
 CN Rubidium chloride iodide (Rb(Cl,I)) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
=====	=====	=====
Cl	0 - 1	22537-15-1
I	0 - 1	14362-44-8
Rb	1	7440-17-7

IT 111387-97-4, Cesium bromide chloride  
 (Cs(Br,Cl)) 111592-14-4, Rubidium  
 bromide iodide (Rb(Br,I)) 135155-33-8,  
 Rubidium bromide chloride (RbBr0-1Cl0-1)  
 656824-87-2, Cesium rubidium bromide

((Cs,Rb)Br)

(vapor deposition of needle-shaped x-ray phosphor layers on supports using coevaporation of **europium oxyhalides** and alkali metal halides)

RN 111387-97-4 HCA

CN Cesium bromide chloride (Cs(Br,Cl)) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
=====	=====	=====
Cl	0 - 1	22537-15-1
Br	0 - 1	10097-32-2
Cs	1	7440-46-2

RN 111592-14-4 HCA

CN Rubidium bromide iodide (Rb(Br,I)) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
=====	=====	=====
I	0 - 1	14362-44-8
Br	0 - 1	10097-32-2
Rb	1	7440-17-7

RN 135155-33-8 HCA

CN Rubidium bromide chloride (Rb(Br,Cl)) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
=====	=====	=====
Cl	0 - 1	22537-15-1
Br	0 - 1	10097-32-2
Rb	1	7440-17-7

RN 656824-87-2 HCA

CN Cesium rubidium bromide ((Cs,Rb)Br) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
=====	=====	=====
Br	1	10097-32-2
Cs	0 - 1	7440-46-2
Rb	0 - 1	7440-17-7

IT 12514-47-5, **Europium bromide oxide** (Eu<sub>3</sub>Br<sub>4</sub>O) 656824-80-5, **Europium fluoride oxide** (Eu<sub>3</sub>F<sub>4</sub>O) 656824-83-8, **Europium chloride oxide** (Eu<sub>3</sub>Cl<sub>4</sub>O)

**656824-84-9, Europium iodide****oxide (Eu<sub>3</sub>I<sub>4</sub>O)**(vapor deposition of needle-shaped x-ray phosphor layers on supports using coevaporation of **europium oxyhalides** and alkali metal halides)

RN 12514-47-5 HCA

CN Europium bromide oxide (Eu<sub>3</sub>Br<sub>4</sub>O) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
=====	=====	=====
O	1	17778-80-2
Br	4	10097-32-2
Eu	3	7440-53-1

RN 656824-80-5 HCA

CN Europium fluoride oxide (Eu<sub>3</sub>F<sub>4</sub>O) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
=====	=====	=====
O	1	17778-80-2
F	4	14762-94-8
Eu	3	7440-53-1

RN 656824-83-8 HCA

CN Europium chloride oxide (Eu<sub>3</sub>Cl<sub>4</sub>O) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
=====	=====	=====
Cl	4	22537-15-1
O	1	17778-80-2
Eu	3	7440-53-1

RN 656824-84-9 HCA

CN Europium iodide oxide (Eu<sub>3</sub>I<sub>4</sub>O) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
=====	=====	=====
O	1	17778-80-2
I	4	14362-44-8
Eu	3	7440-53-1

IC ICM G21K004-00

ICS G01T001-202; G01T001-29; C09K011-85

CC 73-5 (Optical, Electron, and Mass Spectroscopy and Other Related

Properties)

Section cross-reference(s): 75

- ST europium alkali metal halide x ray phosphor vapor deposition;  
storage phosphor vapor deposition; **europium**  
**oxyhalide** alkali metal halide coevapn phosphor deposition
- IT X-ray devices  
(luminescent screens; vapor deposition of needle-shaped x-ray  
phosphor layers on supports using coevaporation of  
**europium oxyhalides** and alkali metal halides  
for)
- IT Halides  
(**oxyhalides, europium**; vapor deposition of  
needle-shaped x-ray phosphor layers on supports using  
coevaporation of **europium oxyhalides** and  
alkali metal halides)
- IT Phosphors  
(radioluminescent phosphors, for x-rays; vapor deposition of  
needle-shaped x-ray phosphor layers on supports using  
coevaporation of **europium oxyhalides** and  
alkali metal halides)
- IT Vapor deposition process  
(vapor deposition of needle-shaped x-ray phosphor layers on  
supports using coevaporation of **europium**  
**oxyhalides** and alkali metal halides)
- IT Alkali metal halides, uses  
(vapor deposition of needle-shaped x-ray phosphor layers on  
supports using coevaporation of **europium**  
**oxyhalides** and alkali metal halides)
- IT Evaporators  
(vapor deposition of needle-shaped x-ray phosphor layers on  
supports using coevaporation of **europium**  
**oxyhalides** and alkali metal halides using molybdenum)
- IT Luminescent screens  
(x-ray; vapor deposition of needle-shaped x-ray phosphor layers  
on supports using coevaporation of **europium**  
**oxyhalides** and alkali metal halides for)
- IT 13769-20-5, Europium dichloride 13780-48-8, Europium dibromide  
656824-85-0, Europium bromide fluoride (Eu(Br,F)) 656824-86-1,  
Europium fluoride iodide (Eu(F,I))  
(**alkali halide** phosphors activated with;  
vapor deposition of needle-shaped x-ray phosphor layers on  
supports using coevaporation of **europium**  
**oxyhalides** and alkali metal halides)
- IT 7440-53-1, Europium, uses 16910-54-6, Europium +2, uses  
(**alkali halide** phosphors activated with;  
vapor deposition of needle-shaped x-ray phosphor layers on  
supports using coevaporation of **europium**  
**oxyhalides** and alkali metal halides)

- IT 656824-99-6, Europium bromide iodide (Eu(Br,I)) 656825-00-2, Europium chloride fluoride (Eu(Cl,F))  
(vapor deposition of needle-shaped x-ray phosphor layers on supports using coevaporation of **europium oxyhalides** and alkali metal halides)
- IT 7787-69-1, Cesium bromide  
7789-39-1, Rubidium bromide  
7791-11-9, Rubidium chloride, uses  
656825-01-3, Rubidium chloride iodide (Rb(Cl,I))  
(vapor deposition of needle-shaped x-ray phosphor layers on supports using coevaporation of **europium oxyhalides** and alkali metal halides)
- IT 111387-97-4, Cesium bromide chloride (Cs(Br,Cl)) 111592-14-4, Rubidium bromide iodide (Rb(Br,I)) 135155-33-8, Rubidium bromide chloride (RbBr0-1Cl0-1)  
656824-87-2, Cesium rubidium bromide ((Cs,Rb)Br)  
(vapor deposition of needle-shaped x-ray phosphor layers on supports using coevaporation of **europium oxyhalides** and alkali metal halides)
- IT 12514-47-5, Europium bromide oxide (Eu3Br4O) 656824-80-5, Europium fluoride oxide (Eu3F4O) 656824-83-8, Europium chloride oxide (Eu3Cl4O)  
656824-84-9, Europium iodide oxide (Eu3I4O)  
(vapor deposition of needle-shaped x-ray phosphor layers on supports using coevaporation of **europium oxyhalides** and alkali metal halides)
- IT 7439-98-7, Molybdenum, uses  
(vapor deposition of needle-shaped x-ray phosphor layers on supports using coevaporation of **europium oxyhalides** and alkali metal halides using evaporators formed from)

L18 ANSWER 7 OF 21 HCA COPYRIGHT 2006 ACS on STN

140:84345 Binderless storage phosphor screen. Leblans, Paul; Toshio, Takabayashi (Agfa-Gevaert, Belg.). Eur. Pat. Appl. EP 1376615 A2 20040102, 14 pp. DESIGNATED STATES: R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, SK. (English). CODEN: EPXXDW.  
APPLICATION: EP 2003-101860 20030625. PRIORITY: EP 2002-100763 20020628.

AB An image storage screen or panel, suitable for use in applications related with computed radiog. is described wherein the screen or panel comprises a binderless needle-shaped stimulable (storage)

phosphor (e.g., CsX:Eu X = Cl, Br) and a substrate (e.g., amorphous-C), wherein the substrate has a surface roughness <2 .mu.m and a reflectivity >80%, wherein the substrate may be overcoated with Al reflecting layer. The image storage screen or panel may be used for mammog. applications or computed radiog.

IT 13843-47-5, Europium bromide  
oxide (EuBrO)

(binderless storage phosphor screen using amorphous carbon  
substrate)

RN 13843-47-5 HCA

CN Europium bromide oxide (EuBrO) (9CI) (CA INDEX NAME)

Br—Eu=O

IT 7647-17-8, Cesium chloride (CsCl  
) , uses 7787-69-1, Cesium bromide (  
CsBr)

(phosphor; binderless storage phosphor screen using amorphous  
carbon substrate)

RN 7647-17-8 HCA

CN Cesium chloride (CsCl) (7CI, 8CI, 9CI) (CA INDEX NAME)

Cl—Cs

RN 7787-69-1 HCA

CN Cesium bromide (CsBr) (9CI) (CA INDEX NAME)

Br—Cs

IC ICM G21K004-00

CC 73-5 (Optical, Electron, and Mass Spectroscopy and Other Related  
Properties)

Section cross-reference(s): 8, 74

IT 13843-47-5, Europium bromide  
oxide (EuBrO)

(binderless storage phosphor screen using amorphous carbon  
substrate)

IT 7647-17-8, Cesium chloride (CsCl  
) , uses 7787-69-1, Cesium bromide (  
CsBr)

(phosphor; binderless storage phosphor screen using amorphous  
carbon substrate)

L18 ANSWER 8 OF 21 HCA COPYRIGHT 2006 ACS on STN

138:328730 Phosphors for radiographic image intensifiers. Fuchs,

Manfred; Hell, Erich; Knuepfer, Wolfgang; Mattern, Detlef; Schulz, Reiner (Siemens AG, Germany). Ger. Offen. DE 10148161 A1 20030424, 6 pp. (German). CODEN: GWXXBX. APPLICATION: DE 2001-10148161 20010928.

AB Phosphors for radiog. image intensifiers are described by the general formula  $Me_1X:Me_2$  ( $Me_1$  = an alkali metal cation;  $X$  = a halogen anion; and  $Me_2$  is a nonmonovalent metal cation dopant). An addnl. dopant may also be present. The use of the phosphors in radiog. image intensifiers and radiog. image intensifiers employing the phosphors are also described.

IT 7787-69-1, Cesium bromide

7789-17-5, Cesium iodide

(alkali metal halide phosphors for radiog. image intensifiers and the image intensifiers)

RN 7787-69-1 HCA

CN Cesium bromide (CsBr) (9CI) (CA INDEX NAME)

Br—Cs

RN 7789-17-5 HCA

CN Cesium iodide (CsI) (7CI, 8CI, 9CI) (CA INDEX NAME)

Cs—I

IT 13843-47-5, Europium bromide  
oxide (EuBrO)

(cesium bromide contg.; alkali metal halide phosphors for radiog. image intensifiers and the image intensifiers)

RN 13843-47-5 HCA

CN Europium bromide oxide (EuBrO) (9CI) (CA INDEX NAME)

Br—Eu=O

IC ICM C09K011-61

ICS G21K004-00

CC 73-5 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)

Section cross-reference(s): 8, 74

IT 7787-69-1, Cesium bromide

7789-17-5, Cesium iodide

(alkali metal halide phosphors for radiog. image intensifiers and the image intensifiers)

IT 13759-88-1, Europium tribromide 13843-47-5,  
Europium bromide oxide (EuBrO)



14457-87-5, Cerium bromide

(cesium bromide contg.; alkali metal halide phosphors for radiog. image intensifiers and the image intensifiers)

L18 ANSWER 9 OF 21 HCA COPYRIGHT 2006 ACS on STN

137:53654 A cesium halide storage phosphor with narrow emission spectrum upon UV-excitation. Leblans, Paul; Struye, Luc (Agfa-Gevaert, Belg.). Eur. Pat. Appl. EP 1217633 A1 20020626, 8 pp. DESIGNATED STATES: R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR: (English). CODEN: EPXXDW. APPLICATION: EP 2001-655 20011123. PRIORITY: EP 2000-204700 20001222.

AB This Cs halide:Eu phosphor has a narrow emission spectrum for UV-excitation and panels including such a phosphor, are described. Methods to prep. this phosphor are also presented.

IT 7787-69-1, Cesium bromide (CsBr )

(activated with Eu; cesium halide storage phosphor with narrow emission spectrum upon UV-excitation)

RN 7787-69-1 HCA

CN Cesium bromide (CsBr) (9CI) (CA INDEX NAME)

Br—Cs

IT 7647-17-8, Cesium chloride (CsCl ), uses

(activated with Eu; cesium halide storage phosphor with narrow emission spectrum upon UV-excitation)

RN 7647-17-8 HCA

CN Cesium chloride (CsCl) (7CI, 8CI, 9CI) (CA INDEX NAME)

Cl—Cs

IT 13843-47-5, Europium bromide oxide (EuBrO)

(cesium halide storage phosphor with narrow emission spectrum upon UV-excitation)

RN 13843-47-5 HCA

CN Europium bromide oxide (EuBrO) (9CI) (CA INDEX NAME)

Br—Eu=O

IT 13759-95-0, Europium chloride oxide (EuClO) 22015-36-7,

Europium fluoride oxide (EuFO)

22015-37-8, Europium iodide

oxide (EuIO)

(cesium halide storage phosphor with narrow  
emission spectrum upon UV-excitation)

RN 13759-95-0 HCA

CN Europium chloride oxide (EuClO) (9CI) (CA INDEX NAME)

Cl-Eu=O

RN 22015-36-7 HCA

CN Europium fluoride oxide (EuFO) (9CI) (CA INDEX NAME)

F-Eu=O

RN 22015-37-8 HCA

CN Europium iodide oxide (EuOI) (7CI, 8CI, 9CI) (CA INDEX NAME)

I-Eu=O

IC ICM G21K004-00

ICS C09K011-85

CC 71-7 (Nuclear Technology)

Section cross-reference(s): 8

ST radiog luminescent screen cesium bromide

europium storage phosphor

IT Annealing

Luminescence

Radiographic luminescent screens

Vapor deposition process

(cesium halide storage phosphor with narrow  
emission spectrum upon UV-excitation)

IT Rare earth halides

(europium; cesium halide storage phosphor  
with narrow emission spectrum upon UV-excitation)

IT 7440-53-1, Europium, uses

(CsBr and CsCl activated with; cesium  
halide storage phosphor with narrow emission spectrum  
upon UV-excitation)

IT 7787-69-1, Cesium bromide (CsBr  
)

(activated with Eu; cesium halide storage  
phosphor with narrow emission spectrum upon UV-excitation)

IT 7647-17-8, Cesium chloride (CsCl  
) , uses

- (activated with Eu; cesium halide storage phosphor with narrow emission spectrum upon UV-excitation)
- IT 1333-74-0, Hydrogen, processes 7440-37-1, Argon, processes  
(cesium halide storage phosphor with narrow emission spectrum upon UV-excitation)
- IT 13780-48-8, Europium bromide (EuBr<sub>2</sub>) 13843-47-5, Europium bromide oxide (EuBrO)  
(cesium halide storage phosphor with narrow emission spectrum upon UV-excitation)
- IT 10025-76-0, Europium chloride (EuCl<sub>3</sub>) 13759-88-1, Europium bromide (EuBr<sub>3</sub>) 13759-90-5, Europium iodide (EuI<sub>3</sub>) 13759-95-0, Europium chloride oxide (EuClO)  
) 13765-25-8, Europium fluoride (EuF<sub>3</sub>) 13769-20-5, Europium chloride (EuCl<sub>2</sub>) 14077-39-5, Europium fluoride (EuF<sub>2</sub>) 22015-35-6, Europium iodide (EuI<sub>2</sub>) 22015-36-7, Europium fluoride oxide (EuFO) 22015-37-8, Europium iodide oxide (EuIO)  
(cesium halide storage phosphor with narrow emission spectrum upon UV-excitation)

L18 ANSWER 10 OF 21 HCA COPYRIGHT 2006 ACS on STN

- 136:141839 On the local structure of Eu<sup>3+</sup> ions in oxyfluoride glasses. Comparison with fluoride and oxide glasses. Lavin, V.; Babu, P.; Jayasankar, C. K.; Martin, I. R.; Rodriguez, V. D. (Departamento de Fisica Fundamental y Experimental, Universidad de La Laguna, Tenerife, La Laguna, E-38200, Spain). Journal of Chemical Physics, 115(23), 10935-10944 (English) 2001. CODEN: JCPSA6. ISSN: 0021-9606. Publisher: American Institute of Physics.
- AB Broadband and fluorescence line narrowing optical spectroscopic studies were used to study the local environments of Eu<sup>3+</sup> ions in Li fluoroborate glasses. From the vibronic spectra, different borate groups coupled with the Eu<sup>3+</sup> ions were identified. A pulsed tunable dye laser was used to selectively excite the 5D<sub>0</sub> level of the Eu<sup>3+</sup> ion and the subsequent 5D<sub>0</sub> 7F<sub>1</sub> fluorescence spectra were monitored as a function of the exciting wavelength. From these FLN studies, three 7F<sub>1</sub> Stark levels were identified and a C<sub>2v</sub> orthorhombic symmetry was assumed in the subsequent calcn. of the crystal-field parameters for the different environments occupied by the Eu<sup>3+</sup> ions in the glass. The 2nd rank crystal-field parameters were systematically analyzed for the Eu<sup>3+</sup>:Li fluoroborate glass from the site dependent behavior of the 7F<sub>1</sub> level splitting. The importance of the J-mixing in the crystal-field anal. was emphasized. An appropriate method for comparing the crystal-field interactions in different glasses is proposed by analyzing the 7F<sub>1</sub> level. Thus, results obtained for the Eu<sup>3+</sup>:fluoroborate were compared with recalcd. results in other Eu<sup>3+</sup> doped fluoride, borate, silicate, and borosilicate glasses. An intermediate behavior between Eu<sup>3+</sup>:oxide

and  $\text{Eu}^{3+}$ :fluoride glasses is obsd. for the local structure of the  $\text{Eu}^{3+}$  ions in the fluoroborate glass, indicating the active participation of F ions in the immediate environments of the lanthanide ion in this glass.

IT 7789-24-4, **Lithium fluoride**, occurrence  
(glass contg.; local structure of  $\text{Eu}^{3+}$  ions in oxyfluoride or fluoride or oxide glasses)

RN 7789-24-4 HCA

CN Lithium fluoride ( $\text{LiF}$ ) (9CI) (CA INDEX NAME)

F—Li

CC 73-5 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)

Section cross-reference(s): 57, 65

ST local structure **europium oxyfluoride** fluoride oxide glass

IT 1308-96-9, **Europium sesquioxide** 7789-24-4, **Lithium fluoride**, occurrence 10043-35-3, **Boric acid**, occurrence  
(glass contg.; local structure of  $\text{Eu}^{3+}$  ions in oxyfluoride or fluoride or oxide glasses)

L18 ANSWER 11 OF 21 HCA COPYRIGHT 2006 ACS on STN

135:378856 A binderless storage phosphor screen with needle shaped crystals. (Agfa-Gevaert N.V., Belg.). Eur. Pat. Appl. EP 1158540 A1 20011128, 15 pp. DESIGNATED STATES: R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO. (English). CODEN: EPXXDW. APPLICATION: EP 2000-201857 20000524.

AB A binderless storage phosphor screen with needle shaped crystals, wherein the phosphor is an **alkali halide** phosphor and the needles show high [100] unit cell orientation in the plane of the screen.

IT 7787-69-1P, **Cesium bromide**  
(Eu doped; binderless storage phosphor screen with needle shaped crystals)

RN 7787-69-1 HCA

CN Cesium bromide ( $\text{CsBr}$ ) (9CI) (CA INDEX NAME)

Br—Cs

IT 13843-47-5, **Europium bromide**  
**oxide  $\text{EuBrO}$**

(binderless storage phosphor screen with needle shaped crystals of  $\text{CsBr}$  doped with Eu formed by vapor deposition of  $\text{CsBr}$  and)

RN 13843-47-5 HCA

CN Europium bromide oxide (EuBrO) (9CI) (CA INDEX NAME)

Br—Eu—O

- IC ICM G21K004-00  
ICS C09K011-85
- CC 74-13 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)
- ST binderless storage phosphor screen needle shaped **alkali halides** crystals
- IT Vapor deposition process  
(binderless storage phosphor screen with needle shaped crystals of **CsBr** doped with Eu formed by)
- IT X-ray diffraction  
(by **CsBr** doped with Eu crystals formed by vapor deposition of **CsBr** and **EuOBr**)
- IT 7787-69-1P, **Cesium bromide**  
(Eu doped; binderless storage phosphor screen with needle shaped crystals)
- IT 7440-53-1, Europium, processes  
(binderless storage phosphor screen with needle shaped crystals of **CsBr** doped with)
- IT 13759-88-1, Europium tribromide 13780-48-8, Europium dibromide  
13843-47-5, **Europium bromide oxide EuBrO**  
(binderless storage phosphor screen with needle shaped crystals of **CsBr** doped with Eu formed by vapor deposition of **CsBr** and)
- IT 7440-37-1, Argon, processes  
(binderless storage phosphor screen with needle shaped crystals of **CsBr** doped with Eu formed by vapor deposition of **CsBr** and **EuOBr** in atm. of)
- L18 ANSWER 12 OF 21 HCA COPYRIGHT 2006 ACS on STN  
135:53365 A binderless storage phosphor screen with needle shaped crystals. Hell, Erich; Fuchs, Manfred; Mattern, Detlef; Schmitt, Bernhard; Leblans, Paul (Agfa-Gevaert, Belg.). Eur. Pat. Appl. EP 1113458 A1 20010704, 16 pp. DESIGNATED STATES: R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO. (English). CODEN: EPXXDW. APPLICATION: EP 2000-204217 20001128. PRIORITY: DE 1999-19963182 19991227; EP 2000-201857 20000524.
- AB A binderless storage phosphor screen with needle shaped crystals, wherein the phosphor is an **alkali-halide** phosphor and the needles show high [100] unit cell orientation in the plane of the screen.
- IT 7647-17-8, **Cesium chloride**, uses

**7787-69-1, Cesium bromide**

(Eu doped; binderless storage phosphor screen with needle shaped crystals of)

RN 7647-17-8 HCA

CN Cesium chloride (CsCl) (7CI, 8CI, 9CI) (CA INDEX NAME)

Cl—Cs

RN 7787-69-1 HCA

CN Cesium bromide (CsBr) (9CI) (CA INDEX NAME)

Br—Cs

IT 13843-47-5, Europium bromide  
oxide EuBrO

(vapor deposition of CsBr or CsCl and

EuOBr in process of fabrication of binderless storage phosphor screen with needle shaped crystals)

RN 13843-47-5 HCA

CN Europium bromide oxide (EuBrO) (9CI) (CA INDEX NAME)

Br—Eu=O

IC ICM G21K004-00

ICS C09K011-85

CC 73-5 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)

Section cross-reference(s): 71, 75

ST binderless storage phosphor screen needle shaped crystals  
cesium halide

IT Vapor deposition process

(of CsBr or CsCl and EuOBr in

process of fabrication of binderless storage phosphor screen with needle shaped crystals)

IT 7647-17-8, Cesium chloride, uses

7787-69-1, Cesium bromide

(Eu doped; binderless storage phosphor screen with needle shaped crystals of)

IT 13843-47-5, Europium bromide  
oxide EuBrO

(vapor deposition of CsBr or CsCl and

EuOBr in process of fabrication of binderless storage phosphor screen with needle shaped crystals)

134:63877 Radiation image read out apparatus. Struye, Luc; Leblans, Paul (Agfa-Gevaert Naamloze Vennootschap, Belg.). Eur. Pat. Appl. EP 1065525 A2 20010103, 15 pp. DESIGNATED STATES: R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO. (English). CODEN: EPXXDW. APPLICATION: EP 2000-202111 20000613. PRIORITY: US 1999-PV142276 19990702; US 1999-PV159004 19991008.

AB A system for reading a radiation image that has been stored in a photostimulable phosphor screen comprising a divalent europium activated **cesium halide** phosphor wherein said halide is at least one of chloride and bromide. Light emitted by the phosphor screen upon stimulation is sepd. from stimulation light by means of a filter comprising a dye.

IT 7787-69-1, **Cesium bromide**  
(Eu2++ activated; app. for radiation image read out comprising photostimulable phosphor screen)

RN 7787-69-1 HCA

CN Cesium bromide (CsBr) (9CI) (CA INDEX NAME)

Br—Cs

IT 7647-17-8, **Cesium chloride**, properties  
(Eu2++ activated; app. for radiation image read out comprising photostimulable phosphor screen contg.)

RN 7647-17-8 HCA

CN Cesium chloride (CsCl) (7CI, 8CI, 9CI) (CA INDEX NAME)

Cl—Cs

IT 13759-95-0, **Europium chloride**  
**oxide EuClO** 13843-47-5, **Europium**  
**bromide oxide EuBrO**  
(app. for radiation image read out comprising photostimulable phosphor screen contg. **cesium halide** and)

RN 13759-95-0 HCA

CN Europium chloride oxide (EuClO) (9CI) (CA INDEX NAME)

Cl—Eu=O

RN 13843-47-5 HCA

CN Europium bromide oxide (EuBrO) (9CI) (CA INDEX NAME)

Br—Eu=O

- IC ICM G01T001-29  
CC 74-3 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)  
Section cross-reference(s): 71, 73  
ST radiation image read out app europium doped **cesium halide**; app radiation imaging phosphore dye optical filter  
IT 7787-69-1, **Cesium bromide**  
(Eu<sup>2++</sup> activated; app. for radiation image read out comprising photostimulable phosphor screen)  
IT 7647-17-8, **Cesium chloride**, properties  
(Eu<sup>2++</sup> activated; app. for radiation image read out comprising photostimulable phosphor screen contg.)  
IT 7440-53-1D, Europium, dihalide, trihalide and halide oxide, uses  
10025-76-0, Europium trichloride 13759-88-1, Europium tribromide  
13759-95-0, **Europium chloride oxide EuClO** 13769-20-5, Europium dichloride  
13780-48-8, Europium dibromide 13843-47-5, **Europium bromide oxide EuBrO**  
(app. for radiation image read out comprising photostimulable phosphor screen contg. **cesium halide** and)  
IT 16910-54-6, Europium 2+, uses  
(app. for radiation image read out with photostimulable phosphor screen comprising **cesium halide** activated with)  
  
L18 ANSWER 14 OF 21 HCA COPYRIGHT 2006 ACS on STN  
119:18564 Reexamination of fluorine-19 NMR in selected solids, the conductor silver fluoride (Ag<sub>2</sub>F) and reference insulators for studies of YBa<sub>2</sub>Cu<sub>3</sub>O<sub>7</sub>-type superconductors. Pan, H.; Gerstein, B. C.; Loeliger, H. R.; Vanderah, T. A. (Nav. Weapons Cent., China Lake, CA, USA). Report, Order No. AD-A243194, 30 pp. Avail. NTIS From: Gov. Rep. Announce. Index (U. S.) 1992, 92(6), Abstr. No. 215,402 (English) 1991.  
AB Evidence of incorporated F in the so-called 1-2-3-type, YBa<sub>2</sub>Cu<sub>3</sub>O<sub>7</sub> derived compds. has been cited. The aim was to confirm an increase in T<sub>c</sub> as Ovshinsky claimed in 1987 by substitution of F for O. One expects for the 1-2-3-type compds., since they display metallic cond. at room temp., a downfield-shifted F NMR resonance. As a guideline for judging the line positions and shapes of fluorine incorporated in the 1-2-3-type compds., the <sup>19</sup>F NMR signals were reexamd. in a metallic inorg. conductor (Ag<sub>2</sub>F), in the insulating starting materials used to synthesize the superconductor phases (YOF, **EuOF**, and YF<sub>3</sub>) and in BaF<sub>2</sub> and CuF<sub>2</sub> which could be formed during the synthesis. AgF and **KF** were used as ref. samples. There appear to be only two inorg. compds. contg. fluorine and showing high metallic cond.: (1) Ag<sub>2</sub>F, with NMR results reported by Nishihara et al., and (2) (Ag<sub>7</sub>O<sub>8</sub>) + (HF<sub>2</sub>)-reported by Hindermann.  
CC 76-4 (Electric Phenomena)



## Section cross-reference(s): 77

L18 ANSWER 15 OF 21 HCA COPYRIGHT 2006 ACS on STN

118:155495 Determination of solubility products and potential -pO<sub>2</sub>- diagrams for yttria and europia in molten **potassium chloride-lithium chloride** eutectic.

Suh, Gill Won; Paik, Young Hyun (Dep. Met. Eng., Korea Univ., Seoul, 136-701, S. Korea). Taehan Kumsok Hakhoechi, 30(8), 981-8. (Korean) 1992. CODEN: TKHCDJ. ISSN: 0253-3847.

AB Soly. products of Y<sub>2</sub>O<sub>3</sub> and Eu<sub>2</sub>O<sub>3</sub> were measured by the potentiometric titrn. method in molten **KCl-LiCl** eutectic at

743K. Measured titrn. curves clearly showed the formation of new types of sol. intermediate oxychloride complex ions, Y<sub>4</sub>O<sub>5</sub>Cl<sub>x+1</sub>-(x-1) and Eu<sub>2</sub>OCl<sub>x+3</sub>-(x-1), before in situ pptn. of those rare earth oxides. Oxides thus formed seemed to be far more reactive than those in their std. state, thereby explaining the discrepancies between measured and calcd. soly. products. The equil. formation consts. for the intermediate oxychloride complex ions, Y<sub>4</sub>O<sub>4</sub>Cl<sub>x-1</sub>-(x-1) and Eu<sub>2</sub>OCl<sub>x+3</sub>-(x-1) were 10<sup>-35.01</sup> and 10<sup>-3.88</sup>, resp. The soly. products for Y<sub>2</sub>O<sub>3</sub> and Eu<sub>2</sub>O<sub>3</sub> were also detd., being 10<sup>-19.73</sup> and 10<sup>-6.63</sup>, resp. From these results the potential-pO<sub>2</sub>- diagrams for Y and Eu were constructed.

IT 7447-40-7D, **Potassium chloride**, eutectic with **lithium chloride** 7447-41-8D, **Lithium chloride**, eutectic with **potassium chloride**

(soly. product of europia and of yttria in molten)

RN 7447-40-7 HCA

CN Potassium chloride (KCl) (9CI) (CA INDEX NAME)

Cl-K

RN 7447-41-8 HCA

CN Lithium chloride (LiCl) (9CI) (CA INDEX NAME)

Cl-Li

CC 68-1 (Phase Equilibriums, Chemical Equilibriums, and Solutions)

ST europia soly product **alkali chloride** eutectic;

yttria soly product **alkali chloride** eutectic;

**oxychloride europium** yttrium formation const

IT Solubility product

(of europia and of yttria in **lithium chloride**

-**potassium chloride** eutectic melt)

IT 7440-53-1D, **Europium, oxychlorides** 7440-65-5D, **Yttrium, oxychlorides**

(formation consts. of)

IT 7447-40-7D, Potassium chloride, eutectic  
with lithium chloride 7447-41-8D,  
Lithium chloride, eutectic with potassium  
chloride

(soly. product of europia and of yttria in molten)

IT 1308-96-9, Europia 1314-36-9, Yttria, properties  
(soly. product of, in lithium chloride-  
potassium chloride eutectic melts)

L18 ANSWER 16 OF 21 HCA COPYRIGHT 2006 ACS on STN

115:148714 A reexamination of fluorine-19 NMR in selected solids, the  
conductor silver fluoride (Ag<sub>2</sub>F) and reference insulators for  
studies of yttrium barium copper oxide (YBa<sub>2</sub>Cu<sub>3</sub>O<sub>7</sub>)-type  
superconductors. Pan, H.; Gerstein, B. C.; Loeliger, H. R.;  
Vanderah, T. A. (Ames Lab., Iowa State Univ., Ames, IA, 50011, USA).  
Applied Magnetic Resonance, 1(1), 101-12 (English), 1990. CODEN:  
APMREI. ISSN: 0937-9347.

AB NMR signals of <sup>19</sup>F were measured in the polycryst. inorg. conductor  
Ag<sub>2</sub>F and in the polycryst. insulators AgF, YOF, EuOF, YF<sub>3</sub>,  
CuF<sub>2</sub>, BaF<sub>2</sub> and KF to compare them to the signals found in  
the so-called .mchlt.1-2-3-type.mchgt. compds. with claimed formulas  
RBa<sub>2</sub>Cu<sub>3</sub>O<sub>7</sub>-xFx (R = Y and Eu). No evidence for a Knight-shifted,  
built-in F signal is found in the 1-2-3-type superconductors,  
whereas Ag<sub>2</sub>F shows a clearly downfield shifted <sup>19</sup>F peak with ref. to  
AgF.

IT 7789-23-3, Potassium fluoride  
22015-36-7, Europium fluoride  
oxide (EuFO)  
(NMR of, fluorine-19)

RN 7789-23-3 HCA

CN Potassium fluoride (KF) (9CI) (CA INDEX NAME)

F-K

RN 22015-36-7 HCA

CN Europium fluoride oxide (EuFO) (9CI) (CA INDEX NAME)

F-Eu=O

CC 77-7 (Magnetic Phenomena)  
Section cross-reference(s): 76

IT Superconductors  
(barium copper yttrium fluoride oxide and barium copper  
europium fluoride oxide, fluorine-19  
NMR of)

- IT Nuclear magnetic resonance  
(of fluorides and barium copper yttrium oxide fluoride and barium copper **europium oxide fluoride**,  
fluorine-19)
- IT 1302-01-8, Silver fluoride (Ag<sub>2</sub>F) 7775-41-9, Silver fluoride (AgF)  
7787-32-8, Barium difluoride 7789-19-7, Copper difluoride  
**7789-23-3, Potassium fluoride**  
13709-49-4, Yttrium trifluoride 14794-98-0, Yttrium fluoride oxide  
(YFO) **22015-36-7, Europium fluoride**  
**oxide (EuFO)** 121764-59-8, Barium copper yttrium  
fluoride oxide (Ba<sub>2</sub>Cu<sub>3</sub>YFO.2O<sub>6.8</sub>) 136200-29-8, Barium copper  
**europium fluoride oxide**  
(Ba<sub>2</sub>Cu<sub>3</sub>EuFO.2O<sub>6.8</sub>)  
(NMR of, fluorine-19)
- IT 7782-41-4  
(nuclear magnetic resonance, of fluorides and barium copper  
yttrium oxide fluoride and barium copper **europium**  
**oxide fluoride**, fluorine-19)

L18 ANSWER 17 OF 21 HCA COPYRIGHT 2006 ACS on STN  
106:60370 Action of alkali metals on lanthanide(III) halides: new  
possibilities. Meyer, Gerd; Schleid, Thomas (Inst. Anorg. Anal.  
Chem., Justus-Liebig-Univ., Giessen, 6300, Fed. Rep. Ger.).  
Inorganic Chemistry, 26(2), 217-18 (English) 1987. CODEN: INOCAJ.  
ISSN: 0020-1669.

AB Lanthanide(III) halides are reduced by alkali metals either to  
binary or ternary lanthanide(II) halides (NdCl<sub>2</sub>, KNd<sub>2</sub>Cl<sub>5</sub>, Sm<sub>4</sub>OCl<sub>6</sub>)  
or to more reduced halides stabilized by interstitials (LuClH<sub>x</sub>,  
Cs<sub>2</sub>Lu<sub>7</sub>Cl<sub>18</sub>C) or, in part, to the metal, the reaction thereby  
providing the necessary **alkali halide** to produce  
a ternary or quaternary lanthanide(III) halide (Na<sub>3</sub>GdCl<sub>6</sub>,  
Cs<sub>2</sub>LiLuCl<sub>6</sub>). Metallothermic redns. are often superior to  
synproportionation reactions because they may proceed at  
considerably lower temps. and, furthermore, crystal growth is  
possible from the melt. Low-temp. modifications may be obtained as  
single crystals from such melts.

IT **12506-22-8P, Europium bromide**  
**oxide (Eu<sub>4</sub>Br<sub>6</sub>O)**  
(prepn. of single cryst.)

RN 12506-22-8 HCA

CN Europium bromide oxide (Eu<sub>4</sub>Br<sub>6</sub>O) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
=====+=====+=====		
O	1	17778-80-2
Br	6	10097-32-2
Eu	4	7440-53-1

IT 7447-41-8, **Lithium chloride**, reactions  
(reaction of, with **cesium chloride** and  
lithium dithullium pentachloride or neodymium dichloride)  
RN 7447-41-8 HCA  
CN Lithium chloride (LiCl) (9CI) (CA INDEX NAME)

Cl-Li

IT 7647-14-5, **Sodium chloride**, reactions  
(reaction of, with ytterbium dichloride and **cesium  
chloride**)  
RN 7647-14-5 HCA  
CN Sodium chloride (NaCl) (9CI) (CA INDEX NAME)

Cl-Na

IT 7647-17-8, **Cesium chloride**, reactions  
(reactions of, with lanthanide chloride and alkali metal  
chlorides)  
RN 7647-17-8 HCA  
CN Cesium chloride (CsCl) (7CI, 8CI, 9CI) (CA INDEX NAME)

Cl-Cs

CC 78-9 (Inorganic Chemicals and Reactions)  
IT Rare earth metals, compounds  
(**alkali halides**, prepn. of, by alkali metal  
redn. of rare earth trihalides)  
IT 7440-00-8P, preparation  
(formation of, in reaction of **cesium chloride**  
and **lithium chloride** with neodymium  
dichloride)  
IT 7440-30-4P, preparation  
(formation of, in reaction of **lithium chloride**  
and **cesium chloride** with lithium dithullium  
pentachloride)  
IT 12051-60-4P, Gadolinium dipotassium pentachloride  
12506-22-8P, **Europium bromide**  
oxide (Eu4Br6O) 71619-19-7P, Digadolinium potassium  
heptachloride 106161-26-6P, Trilithium lutetium hexachloride  
106191-36-0P 106266-28-8P, Praseodymium bromide (Pr2Br5)  
(prepn. of single cryst.)  
IT 25469-93-6, Neodymium dichloride 102499-28-5, Lithium dithullium  
pentachloride

- (reaction of, with **cesium chloride** and **lithium chloride**)
- IT 7447-41-8, **Lithium chloride**, reactions  
(reaction of, with **cesium chloride** and **lithium dithullium pentachloride** or **neodymium dichloride**)
- IT 13874-77-6, **Ytterbium dichloride**  
(reaction of, with **sodium chloride** and **cesium chloride**)
- IT 7647-14-5, **Sodium chloride**, reactions  
(reaction of, with **ytterbium dichloride** and **cesium chloride**)
- IT 7647-17-8, **Cesium chloride**, reactions  
(reactions of, with **lanthanide chloride** and **alkali metal chlorides**)

L18 ANSWER 18 OF 21 HCA COPYRIGHT 2006 ACS on STN

94:23664 Crystal and dielectric study of rare earth oxyfluorides

Na<sub>4</sub>Ln(WNb<sub>2</sub>)O<sub>9</sub>F<sub>5</sub>. Elaatmani, M.; Ravez, J.; Hagenmuller, P. (Lab. Chim. Solide, Univ. Bordeaux, Talence, 33405, Fr.). Materials Research Bulletin, 15(7), 981-3 (French) 1980. CODEN: MRBUAC. ISSN: 0025-5408.

AB Six new compds. with formula Na<sub>4</sub>Ln(WNb<sub>2</sub>)O<sub>9</sub>F<sub>5</sub> (Ln = Y, Nd, Eu, Gd, Dy, Lu) have been synthesized. The corresponding room temp. phases have a tetragonal symmetry and a chloite-type structure. A low temp. a ferroelec.-paraelec. transition is detected for each compd. The Curie temp. increases with the size of the Ln<sup>3+</sup> ion.

CC 76-6 (Electric Phenomena)

Section cross-reference(s): 78

ST rare earth fluoride oxide dielec structure; yttrium fluoride oxide dielec structure; neodymium fluoride oxide dielec structure; **europium fluoride oxide dielec** structure; gadolinium fluoride oxide dielec structure; dysprosium fluoride oxide dielec structure; lutetium fluoride oxide dielec structure; dielec rare earth fluoride oxide; structure rare earth fluoride oxide; transition rare earth fluoride oxide; **sodium fluoride oxide dielec** structure; tungsten fluoride oxide dielec structure; niobium fluoride oxide dielec structure

L18 ANSWER 19 OF 21 HCA COPYRIGHT 2006 ACS on STN

66:59676 LiEu<sub>3</sub>O<sub>4</sub>, a new europium(II, III) compound with LiSr<sub>2</sub>EuO<sub>4</sub>

isostructure. Baernighausen, Hartmut (Univ. Freiburg/Br., Freiburg/Br., Fed. Rep. Ger.). Zeitschrift fuer Anorganische und Allgemeine Chemie, 349(5-6), 280-8 (German) 1967. CODEN: ZAACAB. ISSN: 0044-2313.

AB LiEu<sub>3</sub>O<sub>4</sub> was prep'd. by the redn. of Eu<sub>3</sub>O<sub>4</sub>Br with LiH at 600.degree. in vacuo or by the treatment of Eu<sub>2</sub>O<sub>3</sub> with LiH in a LiCl melt at 650.degree. for 7 hrs. in vacuo. The isostructural compd. LiSr<sub>2</sub>EuO<sub>4</sub> which was prep'd. by the reaction of LiEuO<sub>2</sub> with SrO at

600-800.degree., confirmed that LiEu3O4 contained 2 Eu<sup>2+</sup> ions/formula unit. Cryst. LiEu3O4 is orthorhombic with a 11.565, b 11.535, and c 3.480A.; the space group is Pbnm; Z = 4; and the d. is 7.539. LiEu3O4 decompd. in air at 300-400.degree. to form Eu2O3 and .alpha.-LiEuO2, and reacted with Br at 300-400.degree. to form EuOBr and LiEuO2 or Eu2O3, EuOBr, and LiBr  
 . Heating LiEu3O4 in vacuo at 800-900.degree. gave Eu3O4.

IT 13843-47-5P

(from europium lithium oxide (LiEu3O4) reaction with bromine)

RN 13843-47-5 HCA

CN Europium bromide oxide (EuBrO) (9CI) (CA INDEX NAME)

Br—Eu=O

CC 70 (Crystallization and Crystal Structure)

IT 13843-47-5P

(from europium lithium oxide (LiEu3O4) reaction with bromine)

L18 ANSWER 20 OF 21 HCA COPYRIGHT 2006 ACS on STN

65:70902 Original Reference No. 65:13183g-h,13184a Rare earth oxyfluorides and mixed oxides, fluorides, and oxyfluorides with lithium. Vorres, Karl S.; Riviello, Richard (Purdue Univ., Lafayette, IN). Proc. Conf. Rare Earth Res., 4th, Phoenix, Ariz., Volume Date 1964 521-6 (English) 1965.

AB Oxyfluoride phases for Y and the rare earths (RE), La, Sm, Eu, Gd, Tb, Dy, Ho, Er, Tin, Yb, and Lu were prepd. by several methods. The x-ray powder diagram showed one or both of 2 phases in almost all cases. The lattice consts. (a and .alpha.) observed for oxyfluorides of Dy, Ho, and Er were 6.716 A., 33.07.degree.; 0.647 A., 33.15.degree.; 6.628 A., 33.14.degree., resp. Mixed fluorides of the general formula Li(RE)F4 were prepd. for Y and Gd through Lu. No reaction was observed with the lighter elements Nd, Sm, and Eu. The mixed fluorides were all isostructural and therefore should have the scheelite structure reported for LiYF4. All attempts to prep. mixed oxyfluorides yielded unreacted materials or only rare earth oxyfluorides from the Li(RE)F4 compds.

IT 50808-77-0, Europium fluoride oxide

(prepn. and crystal structure of)

RN 50808-77-0 HCA

CN Europium fluoride oxide (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
=====	=====	=====
O	x	17778-80-2
F	x	14762-94-8

Eu | x | 7440-53-1

CC 14 (Inorganic Chemicals and Reactions)

IT Lithium bromoselenite,  $\text{LiSeO}_2\text{Br}$

Lutetium **lithium fluoride**,  $\text{LiLuF}_4$

Potassium tetraoxobromodiselenite

Selenites, tetraoxobromodi-

Selenites, tetraoxochlorodi-

Terbium **lithium fluoride**,  $\text{LiTbF}_4$

IT 12050-94-1, Cesium tetraoxochlorodiselenite 13825-07-5, Lanthanum fluoride oxide,  $\text{LaOF}$  13825-08-6, Dysprosium fluoride oxide,  $\text{DyOF}$  13825-13-3, Erbium fluoride oxide,  $\text{ErOF}$  39427-25-3, Yttrium fluoride oxide **50808-77-0, Europium**

**fluoride oxide** 53096-22-3, Samarium fluoride

oxide 111445-79-5, Thulium fluoride oxide 111445-80-8, Terbium

fluoride oxide 111445-81-9, Lutetium fluoride oxide 111445-97-7,

Gadolinium fluoride oxide 111445-98-8, Holmium fluoride oxide

111445-99-9, Lanthanum fluoride oxide 111446-01-6, Dysprosium

fluoride oxide 111446-02-7, Erbium fluoride oxide 111446-03-8,

Ytterbium fluoride oxide

(prepn. and crystal structure of)

IT 12048-89-4, Cesium tetraoxobromodiselenite 12048-95-2, Sodium bromoselenite,  $\text{NaSeO}_2\text{Br}$  12051-03-5, Potassium

tetraoxochlorodiselenite 23108-36-3, Lithium yttrium fluoride,

$\text{LiYF}_4$  26916-87-0, Gadolinium **lithium fluoride**,

$\text{LiGdF}_4$  26916-88-1, Lithium terbium fluoride,  $\text{LiTbF}_4$  26916-89-2,

Dysprosium **lithium fluoride**,  $\text{LiDyF}_4$

26916-90-5, Holmium **lithium fluoride**,  $\text{LiHoF}_4$

26916-91-6, Erbium **lithium fluoride**,  $\text{LiErF}_4$

26916-92-7, Lithium thulium fluoride,  $\text{LiTmF}_4$  26916-93-8, Ytterbium

**lithium fluoride** 26916-93-8, Lithium ytterbium

fluoride,  $\text{LiYbF}_4$  26916-94-9, Lithium lutetium fluoride,  $\text{LiLuF}_4$

(prepn. of)

L18 ANSWER 21 OF 21 HCA COPYRIGHT 2006 ACS on STN

49:10663 Original Reference No. 49:2146g-i The crystal structure of yttrium chloride and similar compounds. Templeton, D. H.; Carter, Giles F. (Univ. of California, Berkeley). Journal of Physical Chemistry, 58, 940-4 (Unavailable) 1954. CODEN: JPCHAX. ISSN: 0022-3654.

AB The crystal structure of  $\text{YCl}_3$  was detd. from single crystal x-ray diffraction data. It was monoclinic with unit cell dimensions:  $a = 6.92$ ,  $b = 11.94$ ,  $c = 6.44$  A.,  $\beta = 111.0^\circ$ . The structure can be described as a slightly distorted  $\text{NaCl}$  type with 2/3 of the metal atoms omitted. The d. measured by flotation in mixts. of bromoform and butyl phthalate was 2.55 g./cc.; calcd. from x-ray data the d. was 2.61 g./cc. The following values of  $a$ ,  $b$ ,  $c$ ,  $\beta$ , and vol. in A.<sup>3</sup>, resp., were obtained from powder analyses:

DyCl<sub>3</sub> 6.91, 11.97, 6.40 Å., 111.2.degree., 494; HoCl<sub>3</sub> 6.85, 11.85, 6.39 Å., 110.8.degree., 485; ErCl<sub>3</sub> 6.80, 11.79, 6.39 Å., 110.7.degree., 479; TmCl<sub>3</sub> 6.75, 11.73, 6.39 Å., 110.6.degree., 474; YbCl<sub>3</sub> 6.73, 11.65, 6.38 Å., 110.4.degree., 468; LuCl<sub>3</sub> 6.72, 11.60, 6.39 Å., 110.4.degree., 467; TlCl<sub>3</sub> 6.54, 11.33, 6.32 Å., 110.2.degree., 440; InCl<sub>3</sub> 6.41, 11.10, 6.31 Å., 109.8.degree., 422.

CC 2 (General and Physical Chemistry)

IT Europium fluoride, EuOF  
Gadolinium fluoride, GdOF  
Lanthanum fluorides, LaOF  
Neodymium fluorides, NdOF  
Praseodymium fluorides, PrOF  
Samarium fluoride, SmDF  
Terbium fluorides, TbOF  
Thulium chlorides, TmCl<sub>3</sub>  
(crystal structure of)



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